

DETAILED ACTION

1. This is re-mailing of the action mailed on January 22, 2010. One of reference used was referred to in the body of the rejection but was missed in the title of the rejection. The previous action was in response to amendment filed on November 5, 2009.

Specification

2. The disclosure is objected to because of the following informalities: Reference numerals for wiring patterns and ceramic substrate are not correct, page 9, line 2 and 5.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 15 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over applicant's admitted prior art to Tamura (Japanese Patent Publication No. 2000-101348) in view of Takehara (US Patent No. 6,815,810)..

Regarding claim 15, Tamura in figure 3 discloses a composite ceramic substrate comprising: a ceramic substrate (12) including a surface-mounted component mounted thereon (13, 14); at least one wiring pattern disposed in the ceramic substrate (not explicitly shown in figure but electrode 26 is connection to the component through the internal wiring, therefore, it would have been obvious to construe the internal wiring pattern); at least one external terminal electrode (16) connecting the at least one wiring pattern to a surface electrode of a motherboard (21); at least one convex leg portion (25) made of resin (paragraph 0007) and arranged on the ceramic substrate such that a first end surface of the at least one convex leg portion supports the at least one external terminal electrode (see figure) and a via-hole conductor (27) provided in the at least one convex leg portion (see figure) and connecting the at least one external terminal electrode to the at least one wiring pattern (see figure); a second end surface of the at least one convex leg portion opposite to the first end surface is in direct contact with and directly connected to the ceramic substrate (portion of the leg portion beyond electrode 26 is connected to the ceramic substrate, see figure. If not,

Takehara in figure 1 discloses a structure with substrate 2 formed of low temperature co-fired ceramic laminate (column 6, line 9-17) with via hole conductor (12) in the bottom resin layer formed of conductive resin (column 5, line 40-50). The resin layer in contact with the ceramic substrate will have better adhesive strength.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the structure of Tamura with a second end surface of the at least one convex leg portion opposite to the first end surface is in direct contact with and directly connected to the ceramic substrate, as taught by Takehara, in order to have better adhesive strength.

6. Claims 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Tamura (Japanese Patent Publication No. 2000-101348).

Regarding claim 16, Tamura further discloses the surface-mounted component (13, 14) is mounted on at least one of a first main surface and a second main surface of the ceramic substrate (see figure) and the convex leg portion (25) is disposed on the second main surface of the ceramic substrate (see figure).

Regarding claim 17, Tamura further discloses the convex leg portion is disposed at a periphery of the second main surface of the ceramic substrate (see figure).

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7. Claims 16, 17 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura (Japanese Patent Publication No. 2000-101348) in view of Takehara (US Patent No. 6,815,810).

Regarding claim 16, the modified board of Tamura further discloses the surface-mounted component (13, 14) is mounted on at least one of a first main surface and a second main surface of the ceramic substrate (see figure) and the convex leg portion (25) is disposed on the second main surface of the ceramic substrate (see figure).

Regarding claim 17, the modified board of Tamura further discloses the convex leg portion is disposed at a periphery of the second main surface of the ceramic substrate (see figure).

Regarding claim 28, the modified board of Tamura does not explicitly disclose the surface-mounted component includes an array of external terminal electrodes, is obvious to provide such component, as surface-mounted component with an array of external terminal electrodes, is old known in the art.

Regarding claim 26, the modified board of Tamura discloses all the features of the claimed invention as applied to claim 15 above including the via hole conductor, but does not explicitly disclose the via-hole conductor is made of a flexible conductive resin.

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However, via hole filled with paste made of conductive resin is old and known in the art.

Takehara in figure 1 discloses a structure with substrate 2 formed of low temperature co-fired ceramic laminate (column 6, line 9-17) with via hole conductor (12) in the bottom resin layer formed of conductive resin (column 5, line 40-50).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the modified board of Tamura with the via hole conductor made of flexible conductor to have desired conductivity.

Regarding claim 27, the modified board of Tamura further discloses the substrate to be a multilayer ceramic substrate including a plurality of laminated low temperature co-fired ceramic layers as applied to claim 26 above.

Response to Arguments

8. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwarbhai B. Patel whose telephone number is (571) 272 1933. The examiner can normally be reached on M-F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jinhee Lee can be reached on (571) 272 1977. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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ibp
March 1, 2010

/Ishwarbhai B Patel/
Primary Examiner, Art Unit 2841